

*REMARKS/ARGUMENTS**The Pending Claims*

Claims 1, 2, 4, 5, 8, 9, 12, 13, 16, 19, 21-23, 27-29, 33, 34, 37, 39-51, 53-55, 59, and 64-77 are pending.

*Amendments to the Claims*

The claims have been amended to point out more particularly and claim more distinctly the invention. In particular, claims 2, 53, and 54 have been rewritten as independent claims. Independent claims 3 and 18, as well as claims 6, 7, 10, 11, 14, 15, 20, 24-26, 30-32, 35, and 36 depending therefrom, have been canceled. Independent claim 52 has been canceled, and claims 55 and 59 have been amended so as to depend from claim 53.

Independent claim 1 has been amended to remove reference to variants of SEQ ID NO: 1 and change the phrase “consisting essentially of” to “comprising.” Claims 37, 47, 43, 66, 71, and 77 also have been amended so as to be consistent with the amendments to claim 1 from which they depend.

No new matter has been added by way of these amendments.

*Summary of the Office Action*

The Office objects to claims 2, 17, 53, and 54 as depending from a rejected base claim.

The Office rejects claims 1, 3-16, 18-37, 39-52, 55, 59, and 64-77 under 35 U.S.C. § 112, first paragraph, as allegedly lacking written description.

The Office rejects claims 52 and 55 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. 6,183,961. The Office also rejects claims 52-55 and 59 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. 6,193,982 in view of Ziolkowska et al. (*Acta Biochim Pol*, 53: 617-626 (2006)). The Office further rejects claims 52-55 and 57-62 on the grounds of nonstatutory obviousness-type double patenting as allegedly unpatentable over claims 1-6 of U.S. Patent No. 6,193,982 in view of Ziolkowska et al.

Reconsideration of these objections and rejections is hereby requested.

*Discussion of Claims 2, 17, 53, and 54*

The Office objects to claims 2, 17, 53, and 54 only as depending from a rejected base claim, apparently indicating that such claims otherwise recite allowable subject matter.<sup>1</sup> Each of claims 2, 53, and 54 have been rewritten as independent claims, incorporating the subject matter of the independent claim from which it originally depended, as appropriate. Accordingly, claims 2, 53, and 54 are believed to be in condition for allowance.

*Discussion of the Written Description Rejections*

The Office rejects claims 1, 3-16, 18-37, 39-52, 55, 59, and 64-77 on grounds that the specification does not provide adequate written description support for the antiviral variants and fragments of SEQ ID NO: 1 and the use thereof. Independent claims 3, 18, and 52 as well as claims 6, 7, 10, 11, 14, 15, 20, 24-26, 30-32, 35, and 36 depending therefrom, have been canceled. Thus, the rejection is moot with respect to these claims.

Claims 55 and 59 have been amended so as to depend from claim 53, which is believed to be in condition for allowance as previously stated. Accordingly, the rejection of claims 55 and 59 also obviated by way of the amendment.

All remaining claims depend from claim 1, which has been amended to recite that the antiviral protein consists essentially of the amino acid sequence of SEQ ID NO: 1 and no longer refers to variants or fragments of SEQ ID NO: 1. Accordingly, the basis for the written description rejection does not apply to the amended claims, and Applicants request that the written description rejection be withdrawn.

Applicants do not agree with the basis for the written description rejection for the reasons already made of record. However, Applicants wish to expedite the prosecution of the subject matter considered by the Office to be in condition for allowance. Applicants reserve the right to pursue the canceled subject matter in a later filed application.

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<sup>1</sup> Despite the statement in paragraph 14 of the Office Action that claims 53 and 54 are objected to as depending from a rejected base claim, claims 53 and 54 are included in the anticipation and double patenting rejections of paragraphs 11-13. Accordingly, Applicants respond to the anticipation and double patenting rejections of these claims in following sections.

*Discussion of the Anticipation Rejections*

The Office contends that claims 52 and 55 are anticipated by U.S. 6,183,961. Specifically, the Office contends that the eight amino acid flag protein disclosed in the '961 patent allegedly shares 92% sequence identity with SEQ ID NO: 1. Thus, the Office alleges that antibodies to flag and compositions comprising such antibodies would fall within the scope of claims 52 and 55.

Applicants disagree with the rejection for the reasons already of record. Nevertheless, in order to expedite prosecution, claim 52 has been canceled, and claim 55 has been amended so as to depend from claim 53. The rejection of claims 52 and 55 on these grounds is, therefore, moot.

The Office also contends that claims 52-55 and 59 are anticipated by U.S. 6,193,982 in view of Ziolkowska et al. Applicants believe the amendments to the claims (i.e., canceling claim 52, rewriting claims 53 and 54 as independent claims, and changing the dependency of claim 55) obviate this rejection. In particular, the '982 patent discloses an anti-cyanovirin antibody; it does not disclose or suggest an antibody that would bind to scytovirin (SEQ ID NO: 1) or a protein with 90% or more sequence identity to SEQ ID NO: 1 that has been isolated from *Scytonema varium*, as recited in the amended claims.

The Office contends that the antibodies disclosed in the '982 patent have an internal image of gp120 and would, therefore, be inherently capable of binding both cyanovirin and scytovirin. The Office does not provide any further explanation as to how the disclosure of an anti-cyanovirin antibody with an internal image of gp120 constitutes an inherent disclosure of the claimed antibody.

As explained in the '982 patent, anti-idiotypic antibodies carry an internal image of an epitope of an antigen (the '982 patent at col. 3, lines 25-26). Thus, an anti-cyanovirin antibody that has an internal image of gp120, in fact, has an internal image of the epitope to which cyanovirin binds. gp120 is a large protein of about 500 amino acids, and Applicants have previously demonstrated that cyanovirin and scytovirin bind different portions of gp120 (see page 14, first paragraph, of the "Reply to Office Action" dated November 21, 2007). Thus, antibodies to cyanovirin (or any related antigen disclosed in the '982 patent) would not

have the same "internal image of gp120" as an antibody to scytovirin (or related protein), and cannot properly be considered as anticipating or rendering obvious the subject matter of the pending claims.

Nothing in Ziolkowska et al. changes the proper interpretation of the '982 patent. For these reasons, Applicants request that the anticipation rejections be withdrawn.

*Discussion of the Obviousness-Type Double Patenting Rejection*


The Office contends that claims 52-55 and 59 are unpatentable over claims 1-6 of U.S. 6,193,982 in view of Ziolkowska et al. for the same reasons as discussed above in relation to the anticipation rejection.

For the reasons discussed above with respect to the anticipation rejections, nothing in the '982 patent, taken alone or in combination with Ziolkowska et al., discloses or suggests the antibodies recited in the pending claims, and vice versa: nothing in the pending claims discloses or suggests an anti-cyanovirin antibody as recited in the claims of the '982 patent. Accordingly, Applicants request the withdrawal of the obviousness-type double patenting rejection.

*Conclusion*

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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